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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,359	01/16/2007	Michael John Crabtree	APLE 2 00009	5854

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EXAMINER	
DITRANI, ANGELA M	
ART UNIT	**PAPER NUMBER**
3676	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,359	CRABTREE ET AL.	
	Examiner	Art Unit	
	Angela M. DiTrani	3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18,20,21 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18, 20, 21, 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-5, 7, 8, 10-18, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eagland et al. (US 2005/0189109 – cited in previous action) in view of Miller et al. (US 6,605,570).

With respect to independent claim 1, Eagland et al. discloses a method for recovering materials from a subterranean formation comprising the steps of contacting a subterranean formation with a treatment fluid formulation wherein the treatment fluid formulation comprises a third polymeric material which comprises a second polymeric material cross-linked by a first polymeric material, wherein said first polymeric material comprises a first polymeric material corresponding to formula (i) or (ii), as claimed (see entire disclosure).

The treatment fluid is disclosed to have a viscosity greater than that of water, and, further, may advantageously be formulated with varying viscosities by altering the relative amount and/or concentration of the first and second polymeric material used to prepare the third polymeric material. Although Eagland et al. discloses the treatment fluid as suitable for use within methods for recovering materials from a formation in which production wells having production perforations have been formed and formation fractures which extend into the primary well are shown, and further, wherein during primary production natural pressures within the formation force oil through rock pores

and into fractures and into production wells (see esp. [0070]-[0073]), the reference fails to explicitly teach hydraulically fracturing the formation by contacting the formation with the disclosed (and presently claimed) treatment fluid by contacting the formation at a rate and pressure sufficient to produce or extend a fracture in the formation. Miller et al. teaches well completion and stimulation operations wherein common techniques performed by hydrocarbon producers to increase the net permeability of the formation and stimulation operations are taught to include operations involving the injection of chemicals into the well bore and/or into the formation to react with and dissolve the damage, injection of chemicals through the wellbore and into the formation to react with and dissolve small portions of the formation to create alternative flowpaths for the hydrocarbon, injection of chemicals into the wellbore that will contact drilling or drill-in fluid filter cake from the well bore face, or injection of chemicals through the well bore and into the formation at a pressure sufficient to fracture the formation (col. 1, l. 41-62). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the treatment fluid of Eagland et al., disclosed to be used within a stimulation operation involving the injection of chemicals through the well bore and into the formation to create alternative flowpaths for hydrocarbon, within the well stimulation operation of hydraulic fracturing in order to provide an alternative means to increase the net permeability of the formation therein and, thereby, enhance production therefrom.

With respect to depending claim 2, Eagland et al. teaches the reaction to form said third polymeric material prior to the treatment formulation being injected via a well bore into the subterranean formation (see [0046]).

With respect to depending claims 3 and 4, the combination of Eagland et al. in view of Butler et al. is silent to the treatment fluid formulation viscosity at 25^{O}C and 200^{O}F. Within the disclosure of Eagland et al., however, Eagland et al. teaches that, advantageously, the viscosity of the fluid may be varied by varying the relative amounts and/or concentrations of the first and second polymeric materials used; therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the relative amounts and concentrations of the first and second polymeric materials within the treatment fluid formulation of Eagland et al. in order to obtain a treatment fluid formulation viscosity within the range as claimed at each of the respectively claimed temperatures insofar as because one of ordinary skill in the art would recognize the suitable viscosity for fracturing a given formation dependent upon the actual conditions encountered in the field and it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 234 (CCPA 1955).

With respect to depending claim 5, Eagland et al. teaches the aqueous treatment fluid formulation including at least 90 weight percent water (see [0037]).

With respect to depending claim 6, Eagland et al. fails to teach wherein the treatment fluid formulation includes one or more proppants. Miller et al. teaches the

inclusion of proppants within a hydraulic fracturing fluid for the purpose of holding the walls of the fracture apart after the pumping has stopped and fracturing fluids have leaked off or flowed back (col. 2, l. 6-19). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for proppant within the treatment fluid of Eagland et al. when used within a hydraulic fracturing operation in order to hold the walls of the fracture open, and, thereby enhance subsequent production therefrom.

With respect to depending claims 7 and 8, Eagland et al. teaches wherein said treatment fluid formulation comprises a breaker means for breaking the third polymeric material to reduce its viscosity and facilitate clean-up of the fracture; and further, where the breaker means is arranged to cleave chains of said third polymeric material (see [0049]).

With respect to depending claim 9, Eagland et al. fails to teach wherein the breaker is arranged to have a delayed action and includes a means for restricting contact between an active material thereof and said third polymeric material. Miller et al. teaches a fracturing fluid comprising a breaker, wherein, the breaker may be encapsulated for the purpose of delaying the release of the breaker until a later time at which the viscosity of the fracturing fluid is diminished (col. 10, l. 61 - col. 11, l. 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a breaker with a means for restricting contact between an active material thereof and the fracturing fluid of Eagland et al., in view of Miller et al., in order to delay the breaking action to the desired time of treatment.

With respect to depending claim 10, Eagland et al. teaches selecting a first polymeric material; selecting a second polymeric material which includes a functional group which is able to react in the presence of said first polymeric material to form a third polymeric material; and causing the formation of said third polymeric material by a reaction involving said first and second polymeric materials (see [0007]-[0041]).

With respect to depending claims 11 and 12, Eagland et al. teaches the ratio of the weight percent of said first polymeric material to the weight percent of said second polymeric material selected for preparation of said third polymeric material less than 0.15 and at least 0.01; and further, wherein the sum in said treatment fluid formulation of the weight percent of the first and second polymeric material selected for preparation of said third polymeric material at least 1 weight percent and less than 8 weight percent, as claimed (see [0037]-[0038]).

With respect to depending claim 13, Eagland et al. teaches the provision of a catalyst for catalyzing the reaction of the first and second polymeric materials (see [0035]-[0037]).

With respect to depending claim 14, Eagland et al. teaches wherein one of A or B represents an optionally-substituted aromatic group and the other one represents an optionally substituted heteroaromatic group (see [0008]-[0041]).

With respect to depending claim 15, Eagland et al. teaches the first polymeric material as claimed (see [0008]-[0041]).

With respect to depending claims 16 and 17, Eagland et al. teaches the second polymeric material and the polymeric material includes at least one vinyl alcohol/vinyl acetate copolymer as claimed (see [0036], [0049], [0067]).

With respect to claim 18, Eagland discloses a method of preparing a treatment fluid formulation comprising: selecting a first polymeric material and a second polymeric material a described in claim 1; and contacting said first and second polymeric materials at a weight ratio of first to second in the range 0.025 to 0.067 to form said third polymeric material (see rejection of claim 1 above). The reference, however, fails to further teach contacting the third polymeric material which forms with 5 to 20 weight percent proppants and with an encapsulated breaker means which is arranged to release an active material which can break the third polymeric material as claimed. As previously stated within the rejection of depending claim 6 above, Miller et al. teaches the inclusion of proppants within a hydraulic fracturing fluid for the purpose of holding the walls of the fracture apart after the pumping has stopped and fracturing fluids have leaked off or flowed back (col. 2, l. 6-19). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for proppant within the treatment fluid of Eagland et al. when used within a hydraulic fracturing operation in order to hold the walls of the fracture open, and, thereby enhance subsequent production therefrom. Although the combination is silent to the inclusion of 5 to 20 weight percent proppants, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for the proppants within the range as claimed insofar as because it has been held that “[W]here the general

conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 234 (CCPA 1955). As presented with the rejection of depending claim 9, above, Miller et al. teaches a fracturing fluid comprising a breaker, wherein, the breaker may be encapsulated for the purpose of delaying the release of the breaker until a later time at which the viscosity of the fracturing fluid is diminished (col. 10, l. 61 - col. 11, l. 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a breaker with a means for restricting contact between an active material thereof and the fracturing fluid of Eagland et al., in view of Miller et al., in order to delay the breaking action to the desired time of treatment.

With respect to claim 20, Eagland et al. discloses a treatment fluid formulation comprising: water and a third polymeric material according to claim 1 (see rejection of claim 1 above). The reference, however, fails to teach wherein the treatment fluid comprises one or more proppants; and an encapsulated breaker means which is arranged to release an active material which can break the third polymeric material as claimed. As provided above within the rejection of claim 18, Miller teaches both the inclusion of proppants within a hydraulic fracturing fluid for the purpose of holding the walls of the fracture apart after the pumping has stopped and fracturing fluids have leaked off or flowed back (col. 2, l. 6-19) and an encapsulated breaker for the purpose of delaying the release of the breaker until a later time at which the viscosity of the fracturing fluid is diminished (col. 10, l. 61 - col. 11, l. 4). Therefore, it would have been

obvious to one having ordinary skill in the art at the time the invention was made to provide for proppant within the treatment fluid of Eagland et al. when used within a hydraulic fracturing operation in order to hold the walls of the fracture open, and, thereby enhance subsequent production therefrom and employ a breaker with a means for restricting contact between an active material thereof and the fracturing fluid of Eagland et al., in view of Miller et al., in order to delay the breaking action to the desired time of treatment.

With respect to depending claim 21, Eagland et al., in view of the inclusion of proppant within the formulation as taught by Miller et al., fails to teach wherein the formulation comprises 1 to 5 weight percent of said third polymeric material, 65 to 90 weight percent water, and 5 to 30 weight percent of proppant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for the formulation components within the ranges as claimed insofar as because it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F. 2d 454, 456, 105 USPQ 233, 234 (CCPA 1955).

With respect to independent claim 25, Eagland et al. discloses a method of recovering oil from a subterranean formation comprising: contacting a subterranean formation with a treatment fluid formulation, wherein the treatment fluid formulation comprises a third polymeric material which comprises a second polymeric material cross-linked by a first polymeric material, wherein said treatment fluid has a viscosity as claimed, wherein said first polymeric material has a repeating unit of formula (i) or (ii),

and allowing oil to flow to the surface (see entire disclosure). Although Eagland et al. discloses the treatment fluid as suitable for use within methods for recovering materials from a formation in which production wells having production perforations have been formed and formation fractures which extend into the primary well are shown, and further, wherein during primary production natural pressures within the formation force oil through rock pores and into fractures and into production wells (see esp. [0070]-[0073]), the reference fails to explicitly teach hydraulically fracturing the formation by contacting the formation with the disclosed (and presently claimed) treatment fluid by contacting the formation at a rate and pressure sufficient to produce or extend a fracture in the formation. Miller et al. teaches well completion and stimulation operations wherein common techniques performed by hydrocarbon producers to increase the net permeability of the formation and stimulation operations are taught to include operations involving the injection of chemicals into the well bore and/or into the formation to react with and dissolve the damage, injection of chemicals through the wellbore and into the formation to react with and dissolve small portions of the formation to create alternative flowpaths for the hydrocarbon, injection of chemicals into the wellbore that will contact drilling or drill-in fluid filter cake from the well bore face, or injection of chemicals through the well bore and into the formation at a pressure sufficient to fracture the formation (col. 1, l. 41-62). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the treatment fluid of Eagland et al., disclosed to be used within a stimulation operation involving the injection of chemicals through the well bore and into the formation to create alternative flowpaths

for hydrocarbon, within the well stimulation operation of hydraulic fracturing in order to provide an alternative means to increase the net permeability of the formation therein and, thereby, enhance production therefrom.

Eagland et al. further fails to explicitly teach wherein the treatment fluid formulation comprises an encapsulated breaker means which is arranged to release an active material which can break the third polymeric material when an area fractured closes down whilst being propped by a proppant. Miller teaches both the inclusion of proppants within a hydraulic fracturing fluid for the purpose of holding the walls of the fracture apart after the pumping has stopped and fracturing fluids have leaked off or flowed back (col. 2, l. 6-19) and an encapsulated breaker for the purpose of delaying the release of the breaker until a later time at which the viscosity of the fracturing fluid is diminished (col. 10, l. 61 - col. 11, l. 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for proppant within the treatment fluid of Eagland et al. when used within a hydraulic fracturing operation in order to hold the walls of the fracture open, and, thereby enhance subsequent production therefrom and employ a breaker with a means for restricting contact between an active material thereof and the fracturing fluid of Eagland et al., in view of Miller et al., in order to delay the breaking action to the desired time of when the area fractured closes down whilst being propped by a proppant.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-25 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-27 of copending Application No. 10/509,281 in view of Miller et al.

The claims of the instant application and '281 provide for the use of a third polymeric material formed by a first polymeric material and a second polymeric material within well bore stimulation and recovery operations. The claims of the instant application differ in that the method employing the polymeric materials is that of hydraulic fracturing while that of '281 is, more broadly claimed as a recovery process. Miller et al. teaches well completion and stimulation operations wherein common techniques performed by hydrocarbon producers to increase the net permeability of the formation and stimulation operations are taught to include operations involving the injection of chemicals into the well bore and/or into the formation to react with and dissolve the damage, injection of chemicals through the wellbore and into the formation

to react with and dissolve small portions of the formation to create alternative flowpaths for the hydrocarbon, injection of chemicals into the wellbore that will contact drilling or drill-in fluid filter cake from the well bore face, or injection of chemicals through the well bore and into the formation at a pressure sufficient to fracture the formation (col. 1, l. 41-62). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the treatment fluid of the instant application within a process for recovering material from a subterranean formation, since, as taught by Miller et al., both methods are known forms of hydrocarbon stimulation.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

5. Applicant's arguments, filed 09/22/08, with respect to the claim objections and 35 USC 112 rejections have been fully considered and are persuasive. The objections and 35 USC 112 rejections have been withdrawn.

6. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on (571)272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD
11/07/08

/Zakiya W. Bates/

Primary Examiner, Art Unit 3676